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United States Patent [19]**Ishikawa et al.**[11] **Patent Number:** **5,666,655**[45] **Date of Patent:** **Sep. 9, 1997**

[54] **MOBILE COMMUNICATION SYSTEM WITH
AUTONOMOUS DISTRIBUTED TYPE
DYNAMIC CHANNEL ALLOCATION
SCHEME**

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[52] **U.S. Cl.** **455/512; 455/62; 455/166.2;
455/161.1; 455/185.1; 455/519; 455/452**

[58] **Field of Search** **455/33.1, 34.1,
455/34.2, 54.1, 54.2, 56.1, 67.1, 62, 161.1,
166.1, 166.2, 185.1, 186.1; 379/59, 60**

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[57] **ABSTRACT**

A mobile communication system using an autonomous distributed type dynamic channel allocation scheme, in which each base station manages allocation priority levels for the available radio channels according to past records of channel use for each radio channel, and updates the allocation priority level of each radio channel by weighting past allocation accept/reject judgement results for each radio channel with weight factors which vary according to time intervals of the past allocation accept/reject judgement results from a current time. The mobile stations can be grouped into N groups according to states of the mobile stations and N sets of allocation priority levels for each radio channel in correspondence to these N groups can be managed at each base station. The thresholds for grouping the mobile stations can be determined according to past records of states of the mobile stations.

40 Claims, 26 Drawing Sheets

CHANNEL ID	USED / UNUSED FLAG	PRIORITY LEVEL TABLE		
		#1	---	#N
ch ₁	0	P _{1,1}	---	P _{N,1}
ch ₂	1	P _{1,2}	---	P _{N,2}
⋮	⋮	⋮	⋮	⋮
ch _{M-1}	0	P _{1,M-1}	---	P _{N,M-1}
ch _M	0	P _{1,M}	---	P _{N,M}

PRIORITY LEVEL TABLE NUMBER	DISTANCE THRESHOLD	MOVING DIRECTION THRESHOLD	MOVING SPEED THRESHOLD
#1	TL ₁	TD ₁	TV ₁
#2	TL ₂	TD ₂	TV ₂
⋮	⋮	⋮	⋮
#N-1	TL _{N-1}	TD _{N-1}	TV _{N-1}
#N	TL _N	TD _N	TV _N